

# CLAIM AMENDMENTS

Claims 1 to 27 (canceled)

Claim 28 (Currently Amended)

An isolated nucleic acid ~~specific to mycobacteria of M. tuberculosis complex~~ having a nucleotide sequence selected from the group consisting of SEQ ID No: 1, SEQ ID No: 2, ~~the a~~ complement of SEQ ID No: 1, and ~~the a~~ complement of SEQ ID No: 2.

Claim 29 (Currently Amended)

An isolated nucleic acid ~~specific to mycobacteria of M. tuberculosis complex~~ having a nucleotide sequence selected from the group consisting of SEQ ID No: 1 and ~~the a~~ complement of SEQ ID No: 1.

Claim 30 (Currently Amended)

An isolated nucleic acid ~~specific to mycobacteria of M. tuberculosis complex which mycobacteria is different from BCG, whereas said nucleic acid has~~ having a nucleotide sequence selected from the group consisting of SEQ ID No: 2 and ~~the a~~ complement of SEQ ID No: 2.

Claim 31 (Previously Presented)

A cloning or expression vector containing a nucleic acid sequence selected from the group consisting of SEQ ID No: 1, SEQ ID No: 2, the complement of SEQ ID No: 1, and the complement of SEQ ID No: 2.

Claim 32 (previously presented)

A vector of claim 31 which is a plasmid selected from the group consisting of pRegX3Bc1 and pRegX3Mt1 deposited at CNCM under Nos. I-1765 and I-1766, respectively.

Claim 33 (Canceled)

Claim 34 (Previously Presented)

A nucleotide probe or nucleotide primer comprising 24 consecutive nucleotides selected from a sequence selected from the group consisting of SEQ ID No:1, SEQ ID No: 2, the complement of SEQ ID No: 1, and the complement of SEQ ID No: 2.

Claim 35 (Currently Amended)

A nucleotide probe ~~or nucleotide primer that hybridizes at 68°C in a 5xSSC hybridization buffer with one of the sequences~~ comprising a sequence selected from the

group consisting of sequence SEQ ID No: 1, or the a  
complement of SEQ ID No: 1, or their a corresponding RNA  
sequence[+] of sequence SEQ ID No: 1 or a complement of SEQ  
ID No: 1, or their and a corresponding gene of said  
corresponding RNA sequences, and that contains a maximum of  
21 base pairs.

Claim 36 (Currently Amended)

A nucleotide probe ~~or nucleotide primer that~~  
~~hybridizes at 68°C in a 5xSSC hybridization buffer with one~~  
~~of the sequences~~ having a sequence comprising two  
successive sequences SEQ ID No: 1 followed by a sequence  
SEQ ID No: 2 ~~or their corresponding RNA sequences or their~~  
~~corresponding gene, and that contains a maximum of 21 base~~  
~~pairs.~~

Claim 37 (Currently Amended)

A nucleotide probe ~~for detection of specific sequences~~  
~~of nucleic acids of M.tuberculosis complex other than BCG~~  
~~wherein said probe consists of~~ 21 base pairs having a  
sequence of a region of sequence SEQ ID No: 2 comprising  
~~the a~~ GAG codon in positions 40 to 42 or ~~the a~~ complement  
of said region.

Claim 38 (Currently Amended)

A nucleotide probe ~~for detection of specific sequences of nucleic acids of *M. tuberculosis* complex other than BCG~~ comprising a sequence composed of nucleotides in positions 31 to 51 of SEQ ID No: 2 or ~~the~~ a complement of said sequence.

Claim 39 (Canceled)

Claim 40 (Currently Amended)

A nucleotide probe ~~of claim 37~~ comprising the sequence SEQ ID No: 2 or ~~the~~ a complement of SEQ ID No: 2.

Claim 41 (Currently Amended)

A nucleotide probe ~~or nucleotide primer that hybridizes at 68°C in a 5xSSC hybridization buffer with~~ labeled by digoxigenin comprising one of the sequences selected from the group consisting of SEQ ID No: 1, SEQ ID No: 2, ~~the~~ a complement of SEQ ID No: 1, and ~~the~~ a complement of SEQ ID No: 2, ~~their~~ a corresponding RNA sequences or ~~their~~ sequence selected from the group consisting of SEQ ID No: 1, SEQ ID NO:2 and a corresponding gene of said corresponding RNA sequence, and that contains a maximum of 21 base pairs, which is labeled by digoxigenin.

Claim 42 (Canceled)

Claim 43 (Canceled)

Claim 44 (Currently Amended)

A nucleotide primer pair ~~of claim 42~~ comprising ~~the a~~ pair of primers 5'GCGCGAGAGCCCGAACTGC3' (SEQ ID No: 4) and 5'GCGCAGCAGAAACGTCAGC3' (SEQ ID No: 5).

Claims 45 and 46 (canceled)

Claim 47 (Currently Amended)

A method of detecting a mycobacteria ~~stain~~ strain of M. tuberculosis complex in a biological sample comprising (1) contacting the biological sample to a pair of primers 5'GCGCGAGAGCCCGAACTGC3' (SEQ ID No: 4) and 5'GCGCAGCAGAAACGTCAGC3' (SEQ ID No: 5) ~~wherein one primer comprises the nucleotide sequence of sequences adjacent to the senX3-regX3 region in the 3' of senX3 region and the other primer comprises the nucleotide sequence of sequences adjacent to the senX3-regX3 region in the 5' of regX3 region~~ under conditions to effect hybridization of the

primers to a nucleotide sequence ~~the specific nucleic~~  
~~acids~~ of mycobacteria strains of *M. tuberculosis* complex;  
(2) effecting amplification of ~~the~~ said nucleotide sequence  
~~nucleic acids~~;  
(3) contacting the biological sample containing said  
amplified sequences from step (2) with a nucleotide probe  
~~that hybridizes at 68°C in a 5xSSC hybridization buffer~~  
~~with one of the sequences~~ comprises a sequence selected  
from the group consisting of SEQ ID No: 1, SEQ ID No: 2,  
~~the~~ a complement of SEQ ID No: 1, and the a complement of  
SEQ ID No: 2, ~~their a~~ corresponding RNA sequence[s] of SEQ  
ID No: 1, SEQ ID No: 2, a complement of SEQ ID No: 1 or a  
complement of SEQ ID No: 2, or their a corresponding gene  
of said RNA sequence, and a successive sequence of SEQ ID  
No: 1 followed by SEQ ID No: 2, and that contains a maximum  
~~of 21 base pairs~~ under conditions for formation of  
hybridization complexes between ~~the~~ said probe and said  
amplified nucleotide sequences from step (2) ~~of nucleic~~  
~~acids~~; and  
(4) detecting if any hybridization complexes are present,  
which complexes indicate ~~the a~~ presence of a mycobacteria  
strain of *M. tuberculosis* complex.

Claim 48 (Canceled)

Claim 49 (Currently Amended)

The method of claim 47 wherein the nucleotide probe comprises ~~a region of SEQ ID No: 2 comprising the CAG codon in positions 40 to 42 or the complement of said region~~ a sequence composed of nucleotides in positions 31 to 51 of SEQ ID No: 2 or a complement of said sequence.

Claim 50 (previously presented)

The method of claim 49 effected upon immunodeficient humans to differentiate an infection by BCG from an infection by a virulent mycobacterium of M. tuberculosis complex.

Claim 51 (previously presented)

The method of claim 50 wherein the human is infected with HIV.

Claim 52 (Currently Amended)

A method of identifying groups of mycobacteria belonging to a M. tuberculosis complex comprising (1) contacting ~~the~~ a DNA of previously extracted strains of the M. tuberculosis complex with a nucleotide primer pair comprising a pair of primers 5'GCGCGAGAGCCCGAACTGC3' (SEQ

ID No: 4) and 5'GCGCAGCAGAAACGTCAGC3' (SEQ ID No: 5) ~~of~~  
~~claims 35 and 42~~ under conditions permitting a ~~specific~~  
hybridization of the primers respectively 56 base pairs  
upstream and 62 base pairs downstream of ~~with one of the~~  
~~sequences of claim 28~~ a sequence selected from the group  
consisting of SEQ ID No: 1, SEQ ID No: 2, a complement of  
SEQ ID No: 1 and a complement of SEQ ID No: 2, to obtain  
amplification products and (2) measuring ~~the~~ a length of  
the amplification products obtained from step (1).

Claim 53 (Canceled)

Claim 54 (Currently Amended)

A kit for in vitro identification of strains of  
mycobacteria of a ~~the~~ M. tuberculosis complex in a  
biological sample comprising (1) ~~a primer pair for~~  
~~amplification of a specific nucleotide sequence of~~  
~~mycobacteria of M. tuberculosis complex, one primer~~  
~~consisting of the nucleotide sequence of sequences adjacent~~  
~~to the senX3-regX3 region in the 3' of senX3 region and the~~  
~~other primer consisting of the nucleotide sequence of~~  
~~sequences adjacent to the senX3-regX3 region in the 5' of~~  
~~regX3 region~~ a pair of primers 5'GCGCGAGAGCCCGAACTGC3' (SEQ  
ID No: 4) and 5'GCGCAGCAGAAACGTCAGC3' (SEQ ID No: 5).



Claim 55 (Currently Amended)

A method of detection and of differential diagnosis of BCG and the members of M. tuberculosis complex in a biological sample comprising:

(1) contacting the biological sample to a nucleotide primer pair comprising a pair of primers 5'GCGCGAGAGCCCGAACTGC3' (SEQ ID No: 4) and 5'GCGCAGCAGAAACGTCAGC3' (SEQ ID No: 5) for amplification of a ~~specific-nucleotide~~ sequence of mycobacteria of M. tuberculosis complex, ~~one primer comprising the nucleotide sequence of sequences adjacent to the senX3-regX3 region in the 3' of senX3 region and the other primer comprising the nucleotide sequence of sequences adjacent to the senX3-regX3 region in the 5' of regX3 region~~ under conditions to effect hybridization of the primers to said nucleotide sequence ~~the specific nucleic acids~~ of mycobacteria strains of M. tuberculosis complex;

(2) effecting amplification of ~~the~~ said nucleotide sequence ~~nucleic acids~~;

(3) contacting the biological sample containing amplified nucleotide sequences from step (2) with a nucleotide probe of two successive sequences SEQ ID No: 1 followed by a sequence SEQ ID No: 2 under conditions for

formation of hybridization complexes between ~~the~~ said probe and said amplified nucleotide sequences from step (2) ~~of nucleic acids;~~

(4) detecting any first hybridization complexes present; and

(5) determining if said first hybridization complexes are also capable of forming second hybridization complexes with a nucleotide probe for detection of ~~specific~~ sequences of nucleic acids of M. tuberculosis complex other than BCG comprising a ~~region of sequence SEQ ID No: 2 comprising the GAG codon in positions 40 to 42~~ sequence composed of nucleotides in positions 31 to 51 of SEQ ID No:2, or the a complement of said sequence region, ~~the a~~ presence of said second hybridization complexes being indicative of ~~the a~~ presence of a M. tuberculosis strain different from BCG and ~~the a~~ presence of said first hybridization complexes uniquely being indicative of the BCG.